

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :

Rodney George WADE

Serial No. : Unassigned

Filed : October 31, 2003

For : ROTARY DRUM RAINHEAD

SUBMISSION OF PRIORITY DOCUMENT(S)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

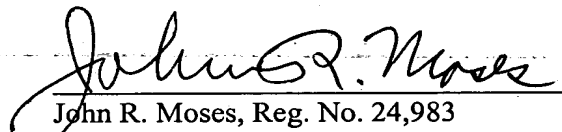
Submitted herewith is a certified copy of each of the below-identified document(s),
benefit of priority of each of which is claimed under 35 U.S.C. § 119:

COUNTRY	APPLICATION NO.	FILING DATE
Australia	2002952421	November 1, 2002

Acknowledgment of the receipt of the above document(s) is requested.

No fee is believed to be due in association with this filing, however, the Commissioner is hereby authorized to charge fees under 37 C.F.R. §§ 1.16 and 1.17 which may be required to facilitate this filing, or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,


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Attorney Docket No.: CULLE-12

Date: November 3, 2003
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**Patent Office
Canberra**

I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2002952421 for a patent by RODNEY GEORGE WADE as filed on 01 November 2002.

WITNESS my hand this
Twenty-fifth day of September 2003

J. Billingsley

**JULIE BILLINGSLEY
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AUSTRALIA
Patents Act 1990

PROVISIONAL SPECIFICATION

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Invention Title:

Rotary Drum Rainhead

This invention is described in the following statement:

ROTARY DRUM RAINHEAD

5 This invention relates to a device for separating debris and other such material from rainwater as it flows into a downpipe from a roof gutter.

10 Many forms of separating devices have been developed over the years for this purpose. These devices generally rely upon fixed screens such as described in my earlier Australian Patent No. 629139. Although my earlier separating device is very effective in operation, there has developed a need to provide a separating device which is more self-cleaning.

15 It is therefore an object of the invention to provide a separating device for the aforementioned purpose which is self-cleaning.

20 Accordingly, the present invention provides a device for separating debris and other such material from rainwater as it flows into a downpipe from a roof gutter, said device comprising a compartment for fitting to the upper end of a downpipe, which compartment includes a
25 horizontally pivoted perforated rotary drum which is designed to rotate when rainwater and entrained debris from an overhead gutter impinges on it such that the rainwater passes through the perforations in the drum into the associated downpipe and the debris is ejected
30 outside of the device by the rotation of the drum.

35 By the term "upper end of the downpipe" is meant an upwardly opening end which may be at the top of the downpipe or at any location between the top and bottom, which has been formed by removing an intermediate section to leave one part with an upwardly opening end and another with a downwardly opening end. That is, the device may be located in any region of the downpipe but

for maximum effectiveness it should be located adjacent to the gutter at the top end. The reason for this is that a large size outlet can be made in the gutter, which can be bigger than the diameter of the downpipe, to enable extra large objects such as twigs, dead birds and other such large items to pass out of the gutter, which would not fit into a conventionally sized downpipe.

The outlet in the bottom wall of the gutter can include a rainwater flow guide which directs the water and debris onto the top surface of the rotary drum at a position past the central vertical axis of the drum such that the drum is caused to rotate in a direction which ejects the debris away from the device. Alternatively, a rainwater flow guide can be incorporated as an integral feature of the top wall of the compartment. Preferably, the bottom edge of the rainwater flow guide terminates only a few centimetres from the top of the rotary drum.

The rotary drum will generally take the form of a hollow cylinder with supporting end walls or spokes through which the horizontal axle upon which the drum rotates, extends. The surface of the drum can be formed from mesh, blades, perforated material or the like. Preferably it is formed from wire or plastic mesh. Metal and coated metal screens are preferred as they are less prone to damage and are longer wearing. Preferred metal screens are welded or wire woven stainless steel, zincalume, galvanized steel, brass, copper and fibreglass mesh. The mesh type and size will depend on the application. For large size items welded galvanized steel mesh may be adequate whereas woven stainless steel may be most appropriate for small items. Generally, however, for the majority of general purpose locations, the mesh size will be one of the standard sizes of 5mm, 7mm, 9mm or 12.5mm.

A discharge chute is suitably included in the

lower portion of the compartment to direct the screened water into the upper end of the downpipe. The discharge shute is preferably shaped and tapered so as to wedge into the downpipe to facilitate placement. To this end, 5 it will have a conical or pyramidal shape depending on whether the downpipe is circular or rectangular in cross-section.

The compartment preferably has a rectangular 10 outer dimension with an inclined lower wall which opens into the discharge shute. It can be fixed in position to the fascia which supports the gutter, or to the wall of the building, by screws or the like which pass through a backing panel formed integrally with, or joined to, the 15 rear wall of the compartment.

In use, water with entrained debris passages from the gutter and is directed by the flow guide onto the top of the perforated rotary drum. The angle at 20 which the water and debris impinges on the rotary drum causes the drum to rotate. The perforations are designed to prevent the passage of the debris therethrough but to permit the water to passage into the drum. The debris is ejected from the surface of the drum as it rotates and 25 the water flows downwardly through the bottom wall of the drum and on into the top of the attached downpipe for discharge.

A preferred embodiment of the invention will 30 now be described with reference to the accompanying drawings, in which:-

Figure 1 is a schematic side-elevation of a separating device according to the present invention, and 35

Figure 2 is a schematic front-elevation of the separating device shown in Figure 1.

In each of the drawings, like reference numerals refer to like parts.

The separator device 10 comprises a compartment 11 with a perforated rotary screen 12 which is adapted for rotation in a horizontal plane about axle 13 extending through opposing side walls of the compartment.

The compartment 11 is fitted to the upper end of a downpipe 14 and is secured to a fascia 15 by pins. The compartment 11 is located immediately below an opening 16 in a gutter 17, about which opening a rainwater flow guide 18 is formed. The rainwater flow guide 18 has a sloping rear wall 19 which directs water and debris onto the top surface of the rotary drum 12 at a position past the central vertical axis 20 of the rotary drum.

The rotary drum 12 has a wire mesh surface with square openings. It is supported on a framework which includes radial members 21, 22 passing through the central horizontal axle 13. The axle 13 is a solid plastics or metal rod which enables free rotation of the drum.

In operation, rainwater and debris passes from the gutter 17 through the opening 16 downwardly into the flow guide 18. Here it is directed onto the top surface of the rotary drum 12 so as to cause the drum to rotate in the direction indicated by the arrow. Upon rotation debris which is larger than the mesh size of the screen is ejected away from the rotating drum while the rainwater continues on downwardly through the drum and into the downpipe 14.

In this manner a self-cleaning rain head is provided which meets the objective of the invention.

Whilst the above has been given by way of illustrative example of the invention, many modifications and variations may be made thereto by persons skilled in the art without departing from the broad scope and ambit
5 of the invention as herein set forth.

Dated this 1st Day of November 2002

Rodney George Wade

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By their Patent Attorneys

CULLEN & CO

FIG.1

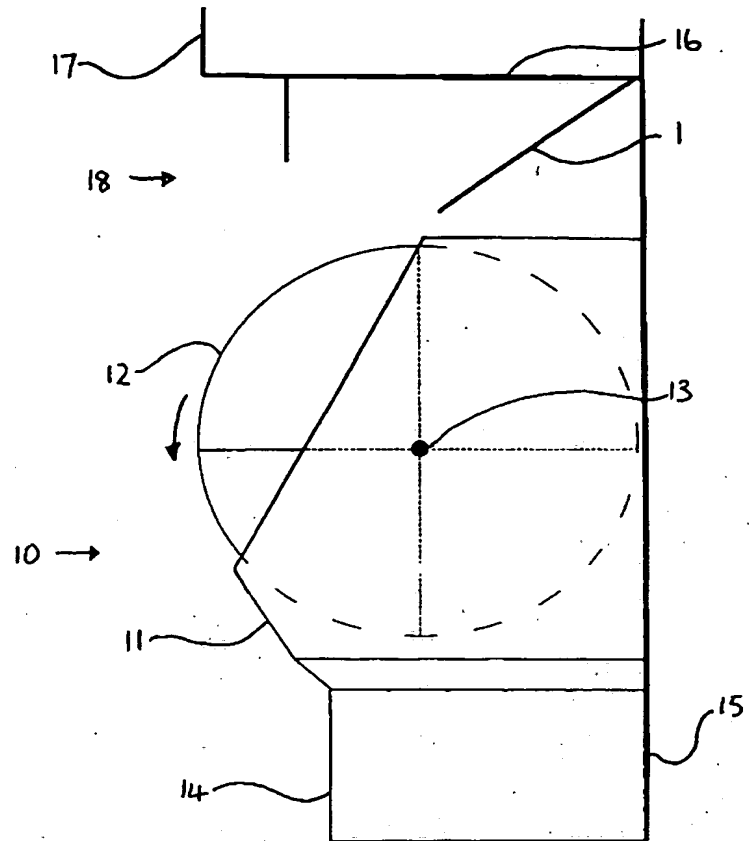


FIG.2

